

ABOUT THE SANCTUARY

Olympic Coast National Marine Sanctuary spans 3,189 square miles of marine waters off the rugged Olympic Peninsula coastline. The sanctuary extends 25 to 50 miles seaward, covering much of the continental shelf and several major submarine canyons.

The sanctuary protects a productive upwelling zone home to numerous marine mammal and seabird species, diverse populations of kelp and intertidal algae, and thriving invertebrate communities. The sanctuary is also rich in cultural resources, with over 150 documented historical shipwrecks and the vibrant contemporary cultures of the Makah, Quileute, and Hoh Indian Tribes and the Quinault Nation.

OFFICE REPORT

OLYMPIC COAST NATIONAL MARINE SANCTUARY NEWS AND PROGRAM UPDATES

Organized by Olympic Coast National Marine Sanctuary (OCNMS) management plan priority areas.

ACHIEVE EFFECTIVE AND COORDINATED MANAGEMENT

U.S. Coast Guard Thirteenth District Commander Meets With Sanctuary Leadership

Rear Admiral Mark E. Butt, incoming district commander of the Coast Guard's 13th District, paid a courtesy visit to the Olympic Coast National Marine Sanctuary's office. The Coast Guard's 13th District covers Washington, Oregon, Idaho and Montana, including Station Quillayute River and Station Neah Bay, which are immediately adjacent to the sanctuary. The Coast Guard and sanctuary coordinate on many issues including living marine resources, emergency response and enforcement.

Sanctuary Collaborations With NOAA's Marine Debris Program Highlighted

In support of NOAA's Marine Debris Program's strategic planning meeting, Olympic Coast National Marine Sanctuary (OCNMS) staff presented an overview of past collaborations and discussed opportunities, challenges, beneficial results and mechanisms for future collaborations. The Marine Debris Program has provided funding and technical support to the sanctuary for beach cleanup coordination and shoreline debris monitoring. OCNMS has worked to implement programs in support of the Marine Debris Program's mission. Their collaborations also include coordination of salvage efforts for a large, concrete dock originating from the Japanese tsunami of 2011, development of a regional response plan for tsunami debris and sustained efforts to remove derelict fishing gear.

Olympic Coast Provides Facilities and Operations Infrastructure Tour

Brendan Bray, from the Office of National Marine Sanctuaries, spent several days visiting with Olympic Coast National Marine Sanctuary (OCNMS) staff and partners to gain a better understanding of the site's infrastructure and operational support needs. OCNMS Deputy Superintendent Kevin Grant and Brendan met with Melissa Williams, Executive Director Feiro Marine Life Center (FMLC), Gail Tate, FMLC Board President, and Patrick Downie, Mayor of Port Angeles, to discuss progress and opportunities for a joint visitor center and educational facility in downtown Port Angeles. Brendan also toured marinas in La Push and Neah Bay and met with harbor masters to discuss home porting for the sanctuary research vessel. He went aboard R/V *Tatoosh*, the sanctuary vessel which is scheduled for replacement, in sanctuary waters, and visited USCG facilities at Neah Bay and La Push to discuss existing or proposed housing to support sanctuary field operations.

Participation in Northwest Association of Networked Ocean Observation Systems Annual Meetings

On August 9-10, Olympic Coast National Marine Sanctuary (OCNMS) sent new research coordinator, Jenny Waddell, to attend the annual meeting of Principal Investigators and the Governing Council meeting for the Northwest Association of Networked Ocean Observing Systems (NANOOS) in Vancouver, Washington. Though it was only her first week on the job, it was a great opportunity for Jenny to meet the partners and learn about existing oceanographic monitoring assets, ongoing research projects, and proposed future efforts supported via the Pacific Northwest's regional Integrated Ocean Observing System (IOOS) network. Jenny will be working with collaborators to better characterize Washington's outer coast in and around the sanctuary and to integrate data streams generated and managed by OCNMS into the NANOOS Visualization System (NVS), thus ensuring that important data collected by the sanctuary are made widely available to partners and the

public through the NVS portal.

IMPROVE OCEAN LITERACY

Sanctuary Education Participates in Feiro Marine Life Center's 35th Anniversary Event

Olympic Coast National Marine Sanctuary (OCNMS) hosted a marine mammal educational booth during the celebratory event honoring the 35th anniversary of Feiro Marine Life Center. Guests were able to interact with a variety of marine mammal skulls, as well as a sea otter pelt. They learned about the unique and highly productive environment of OCNMS and the 29 different marine mammals that either reside year-round or migrate through the sanctuary annually.

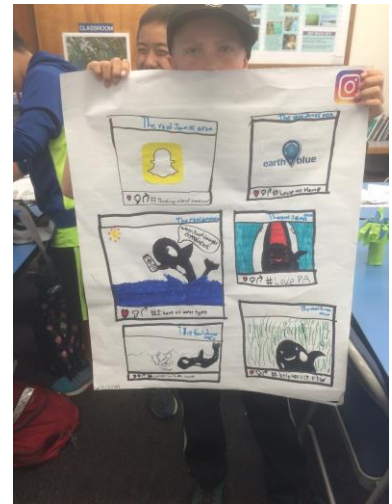
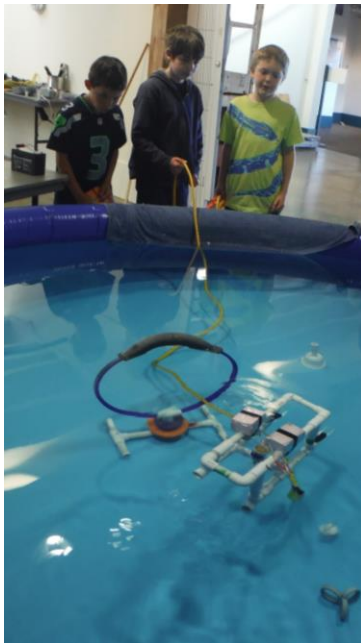
Education Team Reaches Upward Bound 2016 Summer Program With Port Angeles High School Students

Olympic Coast National Marine Sanctuary (OCNMS) education staff conducted four classes at Peninsula College with 23 Port Angeles High School students participating in the Upward Bound 2016 summer program. Classes included an overview of the history of OCNMS, in addition to the different career paths available within the sanctuary, the OCNMS Career Game, Deep-Sea Coral Communities curriculum, and an overview of Ocean Literacy principles that led into Ocean Jeopardy. Education staff continued to work with the Peninsula College Upward Bound summer program at NatureBridge Olympic, where 37 Port Angeles High School students learned about the 29 different marine mammals found in sanctuary waters.

Junior Oceanographer Summer Camps Launched with Feiro Marine Life Center

Olympic Coast National Marine Sanctuary Hollings Scholars created and implemented four summer camps during this period, in partnership with Feiro Marine Life Center (FMLC), in Port Angeles, Washington.

Campers were able to participate in a four-day Junior Oceanographer camp for children, ages ten to twelve, themed "Time Travel through the Ocean," where they learned about marine organisms and habitats of the Olympic Coast highlighting the past, present and future conditions of the ocean. The camp was focused on interactive and hands-on learning including building model shipwrecks, observing plankton under a microscope, and creating a social media page for the ocean. There was also a Junior Oceanographer camp geared to children ages five to six that explored sanctuary habitats and organisms and ways that they can protect the ocean. Campers created footprint art of the marine creatures in Feiro's touch tanks, went on a mock whale watch and learned about orca identification, and enjoyed Florian Graner's film "Discover the Olympic Coast" learning about OCNMS through the eyes of a young harbor seal.



This year there were two Marine Tech camps offered to summer camp participants. One camp was geared to youth ages twelve to fourteen, where they explored different types of marine technology used along Olympic Coast. They used GPS to find geocache treasures each day, and enjoyed a live Ship-to-Shore interaction with E/V *Nautilus*. Students finished the camp building and flying their own PVC Remotely Operated Vehicles (ROVs), with a demonstration and competition for parents and guests. The second Marine Tech camp was for ten to twelve year olds, the first year geared toward the younger ages. Students explored different marine technologies and were introduced to ROV physics of density, drag, buoyancy and center of gravity through hands-on activities. Students then built and flew their own PVC underwater vehicles, with the culminating demonstration and competition for parents and guests.

Watershed Camp With Chalá'at: People of the Hoh River

Olympic Coast National Marine Sanctuary education staff, in partnership with Hoh Tribe Natural Resources staff and Hoh Tribe Youth Support Services, conducted the second annual Hoh River Watershed Adventure Camp for 35 Hoh Tribal members and ten staff. The five-day camp commenced at Hoh Rainforest in Olympic National Park, and ended at the mouth of the Hoh River and Olympic Coast National Marine Sanctuary. The camp focused on connecting Hoh Tribal participants with their culture, treaty rights, traditional resources and harvesting, as



well as climate change and its effects on their resource sustainability. Jay Powell, a cultural expert, fluent Quileute language speaker and anthropologist, participated in the camp, teaching participants the Quileute language, as well as identifying important and traditional resource harvesting sites within the tribe's Usual and Accustomed area. Beginning in Olympic National Park where traditional Hoh resources have been protected since 1938, participants initiated their journey with a traditional song and prayer with Hoh Tribal Elder Jean Sampson, Hereditary Chief of Hoh Tribe, Daki Fisher, and Hereditary Chief of Quileute Tribe, David Hudson. Participants followed Hoh River Trail, where they harvested plants and berries while learning of traditional uses by Elizabeth Campbell, a native plant and cultural expert. After morning cultural lessons on the second day, participants and facilitators started their three-day, 35-mile rafting journey down the Hoh River, a journey common to Hoh Tribal ancestors. In the evenings, elders joined the group at Hoh Trust lands to lead storytelling and traditional songs. Upon arrival to the mouth of Hoh River, community members met the rafts with welcoming songs and drums, celebrating the journey down river. In their Quileute language, participants arrived to shore chanting "We are Chálá-at: People of the Hoh River." Soon afterwards, approximately 100 tribal members and staff took part in a community celebration and feast that consisted of Hoh River smelt, Pacific salmon and salad made with the berries harvested earlier in the week by the camp participants. The final night was spent camping at the historical village site near the mouth of the Hoh River overlooking Olympic Coast National Marine Sanctuary. On the final day, camp participants, as well as additional Hoh tribal youth who were not part of the journey, had the opportunity to build and pilot Remotely Operated Vehicles and participate in hands-on activities led by sanctuary staff. The summit to deep sea experience provided a unique opportunity for tribal members to reconnect with their river while comparing western science and watershed management to traditional relationships with the Hoh River watershed.

Coastal Teachers Experience Ocean Science Inquiry in Action in Olympic Coast National Marine Sanctuary

Olympic Coast National Marine Sanctuary (OCNMS), in partnership with Feiro Marine Life Center and Pacific Education Institute (PEI), conducted a three-day Ocean Science teacher workshop focusing on Inquiry in Action. Facilitators guided 17 coastal community teachers through the process of designing and implementing a field investigation using the sanctuary as their outdoor classroom. The workshop was conducted at Olympic Natural Resource Center (ONRC) in Forks, using local shorelines and intertidal zones along Second Beach and First Beach as their field study area. Using PEI's field investigation workbook, teachers walked through the steps they would take in the classroom with their students to conduct observations, develop testable questions, design a study around the testable question, and conduct data analysis and project presentations. A speaker from Makah Tribe Natural Resources highlighted tribal sovereignty around natural resource management and monitoring. A representative of Olympic Region Harmful Algal Bloom monitoring (ORHAB) spoke to the importance of strong data collection on harmful algal blooms and conducted plankton tows on the shore with the teachers. A local scientist and Washington Sea Grant partner provided information on solid data collection, data control and quality. Teachers made tools for scientific investigations, including smartphone microscopes, plankton nets and quadrats, and then conducted their field investigations in the sanctuary. The workshop wrapped up with group project presentations. Ocean Science is a partnership program with Feiro Marine Life Center, Seattle Aquarium, Grays Harbor Marine Resources Committee and North Pacific Coast Marine Resources Committee to provide ocean literacy education to rural and tribal communities on the outer coast of Washington state. The program reinforces student connections to their local beaches while allowing them to explore the marine environment through scientific inquiry and observational activities. Teacher workshops are held every summer as part of the Ocean Science program to build confidence in our coastal teachers in implementing field investigation in their classrooms as well as building relationships and providing NOAA resources to these remote communities.



Makah Tribal Summer Program for Youth Highlights Balance of Culture, Health and Science

Olympic Coast National Marine Sanctuary (OCNMS) staff engaged 30 Makah Tribal youth in third through sixth grades as part of the 2016 Hidasubac summer camp. The word Hidasubac means balance and was a common theme of the camp which offered multiple stations with fun hands-on activities connecting them to their native culture, health and science. Working with OCNMS staff, youth had the opportunity to learn about Remotely Operated Vehicles (ROVs) and ocean exploration while building and piloting student ROVs. Throughout the process, students considered balance and buoyancy for how their vehicle would fly and perform in the water. Building and flying their own underwater robots encouraged youth to consider future STEM (Science, Technology, Engineering and Math) professions and paths.



Ocean Guardian School Explores Local Tidepools and Community Gardens

Crescent Elementary School, an Ocean Guardian school in Joyce, Washington, explored intertidal communities as part of their 2016 summer school activities. Crescent Elementary had just completed its first year as an Ocean Guardian school with a community school garden. Sanctuary staff met the students, teachers and parent chaperones for a morning tidepool investigation, collecting presence and absence data in the splash, high tide, mid tide and low tide zones. Following the intertidal investigations, students discussed how their community garden is connected to, and helps to increase and support water quality for the intertidal organisms in the tidepools. Students recognized the lack of chemicals and the decrease of transportation and fuel use associated with their school garden, while learning about the importance of healthy water chemistry for the organisms explored in the tidepools. Ocean Guardian programs help build the next generation of marine educators, scientists, and managers and create ocean stewards in our communities.



Washington Coastal Teachers Conduct Shoreline Studies with Olympic Coast National Marine Sanctuary

Olympic Coast National Marine Sanctuary (OCNMS) staff partnered with Pacific Education Institute (PEI) and NatureBridge Olympic to conduct high impact beach field investigations adjacent to OCNMS. Twenty-four teachers along Washington's coast participated in a week-long teacher professional development opportunity, funded by the NOAA Pacific Northwest B-WET (Bay Watershed Education and Training) program and led by PEI and NatureBridge. OCNMS education staff met teachers at Rialto Beach in Olympic National Park to conduct a field investigation on microplastics, discussing how Olympic Coast can be used as a local opportunity for an outdoor classroom. Participating teachers conducted a microplastics investigation, as well as a sand investigation, to study the ecology of the shoreline, as well as the impacts of debris on our marine environment and human health. Following the field work, the group met a National Park Interpretive Ranger to talk about the local geology of the area and the shoreline's substrate composition.



Olympic Coast Hosts International Visitor Leadership Program for Marine Parks Management and Conservation



On August 12, three delegates and their host from Malaysia's Sabah Parks, including Tunku Abdul Rahman Park, visited Olympic Coast Discovery Center (OCDC), the public visitor center for Olympic Coast National Marine Sanctuary (OCNMS). Karlyn Langjahr, OCNMS, gave an overview of the National Marine Sanctuary System and OCNMS to the marine protected area managers and scientists addressing the theme of marine parks management and conservation. Karlyn provided them with a full tour of OCDC and answered their questions about regulations, partnerships and collaborative work, research, education and promotion of recreation. The Malaysian guests had just spent time in Hawai'i and were hosted by Papahānaumokuākea Marine National Monument Superintendent, Athline Clark, and then continued to Key West. The Malaysian marine protected area professionals

visited the United States under the auspices of the Department of State's International Visitor Leadership Program. One of the goals of Office of National Marine Sanctuaries (ONMS) is to work with the international community to strengthen global protection of marine resources, investigate and employ appropriate new management approaches, and dissemination ONMS experience and techniques. Malaysian guests working in the field of MPA management were able to learn about the balance of compatible resource use and protection and conservation.

Kiel Germany Post Doc Students Learn about Tsunami Preparedness

Olympic Coast National Marine Sanctuary (OCNMS) partnered with Clallam County Emergency Management to provide information to 30 post-doc students and two professors from University of Kiel, Germany. Students were touring the Olympic Peninsula in Washington state to study coastal morphology, coastal preservation, coastal vegetation and the tsunami warning system. With a basic understanding of plate tectonics, students were provided an overview of OCNMS and the Office of National Marine Sanctuaries, as well as the coastal communities adjacent to the sanctuary, to understand the place-based importance of emergency management to the sanctuary and its coastal communities. Clallam County Emergency Management staff provided information about the most updated warning system and county plans in the case of the Cascadia Subduction Zone earthquake and subsequent tsunami.

Olympic Coast National Marine Sanctuary Celebrates Makah Days



On August 26-28, the Olympic Coast National Marine Sanctuary Education team participated in the 92nd Annual Makah Days, held in Neah Bay, Washington. The event brought thousands of people out to celebrate the cultural and maritime history of the Makah Tribe. Makah Days activities included traditional dancing and singing, as well as canoe races, a street fair and a parade.

CONDUCT COLLABORATIVE RESEARCH, ASSESSMENTS AND MONITORING TO INFORM ECOSYSTEM-BASED MANAGEMENT

Fieldwork to Study Kelp Forests Dynamics

A study funded by NOAA's Coastal and Ocean Climate Applications Program will enable better understanding of the water quality, carbon and nutrient dynamics in nearshore kelp forests off Washington's Olympic Peninsula. Principle Investigator Dr. Cathy Pfister of University of Chicago partnered with Washington Department of Natural Resources' Helen Berry and Olympic Coast National Marine Sanctuary to monitor kelp forests on the outer coast and along more protected waters of the Strait of Juan de Fuca. Sampling will test the extent to which kelp forests remove carbon dioxide, increase pH, and potentially serve as an ocean acidification refuge for calcifying species.

OCNMS Collaborates With NMFS Cetacean Monitoring Project

The research and monitoring vessel for Olympic Coast National Marine Sanctuary (OCNMS), R/V *Tatoosh*, successfully recovered seven of eight acoustic moorings in support of National Marine Fisheries Service Cetacean Monitoring Project. The project focused on the presence of southern resident killer whales OCNMS during winter months using bottom-anchored acoustic moorings to better determine the movements and occurrence of these whales and identify their important habitats.

NOAA Collaborations Continue for Subtidal Surveys on Outer Washington Coast



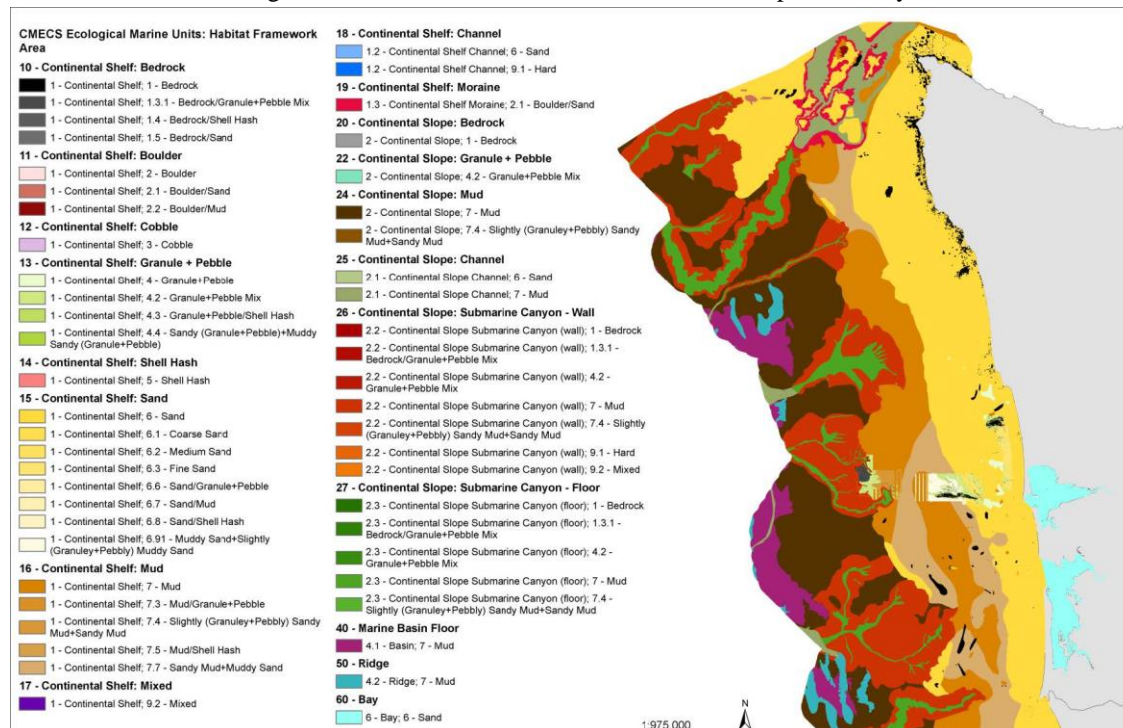
Between August 8-12, a Northwest Fisheries Science Center dive team devoted a week of effort in collaboration with National Marine Sanctuaries West Coast Region staff to complete subtidal dive surveys near kelp beds of Olympic Coast National Marine Sanctuary. This is the second consecutive year of this partnership in surveys of nearshore habitats within the sanctuary. In 2016, divers focused on adaptation and implementation of PISCO (Partnership for Interdisciplinary Studies of Coastal Oceans) methods that have been established for long-term monitoring of similar habitats and specifically the marine protected areas network off the California coast. PISCO dive survey methods have recently been initiated on the Oregon coast. This collaboration was strengthened through assistance of Steve Lonhart, Monterey Bay

National Marine Sanctuary, who joined the dive crew and assisted with planning and implementation, providing his expertise gained from years of PISCO monitoring off California. Sanctuary staff assisted with planning and logistics and supported dive operations with the R/V *Tatoosh*.

Habitat Framework Completes Ecological Marine Units of the West Coast Seafloor

The Habitat Framework has completed Phase 1 of its goal to build a full ecological classification of the marine environment for Washington. *Ecological Marine Units (EMUs)* are a concatenation of two components of a marine classification: seafloor geomorphology and sediments. Both data sources are derived from the West Coast Seafloor Atlas, a combination of multiple data sources including the seafloor mapping conducted by Olympic Coast National Marine Sanctuary (OCNMS) since 2000. These rich GIS layers include mapping and ground-truthing data from the northern extent of the sanctuary to Northern California. With assistance from the non-profit organization NatureServe, the Habitat Framework has completed a full analysis of the West Coast seafloor, with an emphasis on Washington State, using NOAA's Coastal and Marine Ecological Marine Classification Standard.

For the first time, this seafloor classification allows scientists to evaluate the area and location of benthic habitats along the continental shelf, canyons, and ocean floor with their specific mud, sand, rock or mixed sediments in a standardized characterization system. It required the cooperation of many tribal, academic and government agencies to bring this product to fruition. The Habitat Framework concept was presented by the Intergovernmental Policy Council, and supported by Washington state and OCNMS. Data were provided by Oregon State Seafloor Mapping Lab. The final Olympic Ecological Marine Units of Washington and the Greater West Coast Seafloor were produced by NatureServe.



Workshop to Establish an Olympic Coast Sentinel Site for Ocean Acidification

On September 12-13, Olympic Coast National Marine Sanctuary (OCNMS) staff hosted partners and collaborators from many local and regional organizations and agencies, and representatives of three Coastal Treaty tribes, during a workshop at the Olympic Natural Resources Center in Forks, Washington. The workshop brought together resource managers, educators and leading experts on ocean acidification (OA), an oceanographic phenomenon affecting the Olympic Coast that has serious implications for coastal communities, resource users and resource management entities. Four expert panels kicked off the meeting and shared the concept of sentinel sites, existing science assets and activities that could help address OA, and education and outreach initiatives aimed at increasing public awareness of OA before the group launched into targeted discussions. Breakout discussions focused on habitat and species' vulnerability to OA; key functions, components and applications of a sentinel site; and an OA awareness campaign for specific audiences. The highly engaging workshop format led to productive, interactive and informative discussions among participants that ultimately resulted in the group's self-declaration of an Olympic Coast Sentinel Site for OA. OCNMS staff will lead follow-on efforts from the workshop and will summarize and collate the workshop outputs before getting to work on early action items identified by the group for implementation in fiscal year 2017. Learn more about the Office of National Marine Sanctuaries Sentinel Site Program at <http://sanctuaries.noaa.gov/science/sentinel-site-program>, and how education and outreach can help mitigate effects of OA at <http://sanctuaries.noaa.gov/news/april6/ocean-acidification.html>.

West Coast Region Sanctuary Education Coordinators and Research Coordinators Meet

Education Coordinators and Research Coordinators from the five West Coast Region national marine sanctuaries (Olympic Coast, Greater Farallones, Cordell Bank, Monterey Bay, and Channel Islands) met at Channel Islands offices in Santa Barbara in early September for two days of discussions on priorities and regional collaborations. Research Coordinators discussed science priorities, engagement with NOAA's National Centers for Coastal Ocean Science, and new approaches to condition report development. Education team discussed education priorities related to ocean acidification, climate change, citizen science and NOAA's B-WET Program. Joint sessions addressed past and future collaborations with Ocean Exploration Trust and the EV *Nautilus* team, as well as ocean acidification science and education efforts. These five national marine sanctuaries are linked ecologically by the California Current large marine ecosystem, and common science and education priorities to support marine conservation.

New Research Coordinator for Olympic Coast National Marine Sanctuary

On August 8, Olympic Coast National Marine Sanctuary (OCNMS) welcomed Jenny Waddell as the new Research Coordinator. Since 2002, Jenny has worked as a scientist at the National Centers for Coastal Ocean Science (NCCOS)/Center for Coastal Monitoring and Assessment and a team lead in the Office for Coastal Management/Coral Reef Conservation Program. Prior to the Knauss Fellowship that took her to Silver Spring, Maryland, Jenny completed a Master's degree at the University of Washington's School of Marine Affairs with a focus on coastal management. She earned a Bachelor's of Science from the School of Natural Resources at University of California/Berkeley in 1992 and worked for several years as a wildlife biologist and a scuba divemaster in Honduras before relocating to Seattle and becoming involved in coastal land use and marine conservation in the Puget Sound region. Jenny is delighted to return to the Pacific Northwest and is eager to meet and work with the Advisory Council and research partners.



CONSERVE NATURAL RESOURCES IN THE SANCTUARY

West Coast Resource Protection Coordinators Discuss Priorities

The Office of National Marine Sanctuaries (ONMS) West Coast Regional Office sponsored a meeting of resource protection staff to discuss regional priorities. This annual meeting for lead resource protection staff of the five West Coast national marine sanctuaries opened participation to ONMS headquarters and other sanctuaries to discuss sanctuary permits, consultations, and authorizations and U.S. Coast Guard discharges, enforcement and vessel incidents. Sanctuaries shared and compared how they addressed a variety of resource protection issues.

Agencies Respond to Tragic Accident

On August 17, the U.S. Coast Guard (USCG) responded to a report of a 26 foot aluminum vessel capsizing near Hand Rock in Olympic Coast National Marine Sanctuary. Two people and a dog were onboard the vessel. A good Samaritan rescued one of the crew members, but the second crew member was lost with the vessel. The dog was able to swim more than a mile to shore, where Olympic National Park rangers were able to return him to the family. The boat remains in two pieces onshore and in the intertidal area in a remote section of the Olympic National Park wilderness. A salvage of the vessel is currently being investigated. This marks the 43rd vessel for which the sanctuary has records that has been lost in, or adjacent to, the sanctuary since the 1994 designation.

Fishing Vessel Grounds Near Sanctuary Southern Border

On September 8, 2016 the F/V *Trinity* grounded off of Copalis Beach, 1.5 nautical miles from the Olympic Coast National Marine Sanctuary's southern boundary. The 70 foot steel hulled fishing vessel was reported as having 3,000 gallons of diesel, 300 gallons hydraulic oil and one drum of lube oil onboard. The crew remained onboard until the vessel was successfully towed off the beach the following day. The vessel was towed to Hoquiam for inspection. There were no reports of pollution associated with the incident. The cause was not reported. This marks the 44th vessel for which the sanctuary has records that has been lost in, or adjacent to, the sanctuary since the 1994 designation.

UNDERSTANDING THE SANCTUARY'S CULTURAL, HISTORICAL AND SOCIOECONOMIC SIGNIFICANCE

Non-Market Economic Valuation of Olympic Coast National Marine Sanctuary

The Office of National Marine Sanctuaries (ONMS) published an economic evaluation study designed to provide natural resource managers from Olympic Coast National Marine Sanctuary and the State of Washington with information about which natural resource attributes are most important to the public and how much the public values them. The information will support the evaluation of the recreation ecosystem service in the ONMS's *Condition Reports*, which provide information on the status and trends of sanctuary resources. The information also aids the State of Washington in marine spatial planning and ecosystem-based management. The objectives of the study were to estimate the probable influence of changes in resource attribute conditions on the non-market value placed on those attributes. The report is part of a six-volume series on the study of outdoor recreation activities by Washington households on the state's Outer Coast. The study can be found online at <http://sanctuaries.noaa.gov/science/socioeconomic/>.

Internship Supports Tribal Engagement at West Coast Sanctuaries

As part of a collaboration between the National Science Foundation and NOAA's Office of Education, University of California Santa Barbara PhD student of sociocultural anthropology Jonathan Malindine completed a summer internship through a Graduate Research Internship Program. Working with George Galasso at Olympic Coast National Marine

Sanctuary, and in collaboration with Makah, Quileute, Hoh and Quinault treaty tribes, Jonathan supported the drafting of a Maritime Heritage and Cultural Resource Management Plan to meet obligations under the National Historic Preservation Act, and the National Marine Sanctuaries Act. Jonathan interned at Channel Islands National Marine Sanctuary, and also worked to enhance staff's understanding of the broader Chumash community in support of an expected future year sanctuary management plan revision process. Overall, Jonathan's internship activities support NOAA's commitment to meaningful consultation and collaboration with Native American Tribes.

SANCTUARY PERMITTING

Issued Permits and Authorizations

OCNMS-2016-002 – Brad Hanson, NMFS

Project Title: Determining the distribution of killer whales and other cetaceans in the coastal waters of the U.S. using acoustic recorders

Permitted Activity: Altering or disturbing the seafloor in connection with the deployment of seven moorings in OCNMS

Project Location: Seven mooring locations widely distributed in the sanctuary

Permit Duration: Five years, through 2020

Comment: There is concern about repeated anchor abandonment at the same locations for multiple years, an issue identified by Quileute Natural Resources. An analysis of vessel capabilities and availability, field conditions and costs associated with fully retrievable anchor systems will be conducted before permit terms are defined and this permit is issued. No progress has been made on this evaluation, thus this permit is pending.

Pending Permit Requests

OCNMS-2016-003 – Florian Graner, Sealife Productions

Project Title: Intertidal StormCam

Permitted Activity: Altering or disturbing the seafloor in connection with installation of two base plates for camera housing in the intertidal area

Project Location: Sokol Point, north of Hole in the Wall/Rialto Beach

Permit Duration: Fourteen months, April 2016 through June 2017

Comment: This project is a collaboration with Olympic National Park. The permittee has not returned a signed permit and is seeking permission from the Makah Tribe for an alternative installation location, which will require a permit modification. No action since July 2016.

OCNMS-2016-004 – Shawn Larson, Seattle Aquarium

Project Title: Use of Drones for Sea Otter Foraging Data Collection

Permitted Activity: Overflight with drone within sanctuary's overflight restriction zone

Project Location: Nearshore coastal areas where sea otters are distributed; proposed for launch from Makah lands and Giant's Graveyard/Toleak area if Park permission granted

Permit Duration: One year, through June 2017

Comment: All drone use permits will include recording and reporting of observations of wildlife during drone flights to provide information to support further evaluation of disturbance impacts and definition of appropriate operational procedures. Restrictions on drone launch from National Park lands will limit areas of operation allowed in a sanctuary permit. Need to verify new FAA rules for approval and certification for drone use and Makah approval for launch from Makah lands. No action since July 2016.

OCNMS-2016-006 – Van Helker, National Marine Fisheries Service

Project Title: Aerial surveys of Olympic Coast National Marine Sanctuary Steller sea lion sites with an unmanned aircraft

Permitted Activity: Overflight with drone within sanctuary's overflight restriction zone

Project Location: Vicinity of Carroll Island and Sea Lion Rock

Permit Duration: Two years, through September 2017

Comment: All drone use permits will include recording and reporting of observations of wildlife during drone flights to provide information to support further evaluation of disturbance impacts and definition of appropriate operational procedures. Drone launch from a boat is proposed. Permittee has FAA approval for UAS piloting. Permit was completed but permittee withdrew request on 14July2016 because pup counts had declined already for the season. Will re-evaluate need and conditions for a permit in 2017. No action since July 2016.

OCNMS-2016-007 – Tim Wooton, University of Chicago

Project Title: Large-scale shoreline monitoring using aerial photographic platforms

Permitted Activity: Overflight with drone within sanctuary's overflight restriction zone

Project Location: Vicinity of Tatoosh Island

Permit Duration: Five years, through 2021

Comment: All drone use permits will include recording and reporting of observations of wildlife during drone flights to provide information to support further evaluation of disturbance impacts and definition of appropriate operational procedures. Need to verify new FAA rules for approval and certification for drone use. Makah approval (research permit) has been provided for launch from Makah lands. No action since July 2016.

LEARN ABOUT YOUR SANCTUARY / NATURAL HISTORY

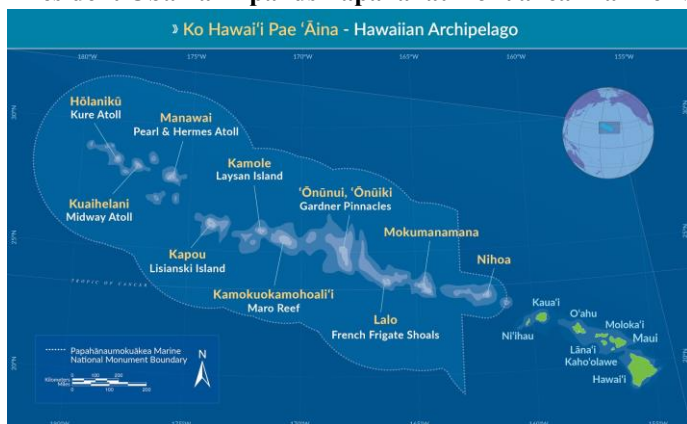
Unusual Sighting of Arctic Ribbon Seal on Southern Washington Coast

On August 16, a lone, adult ribbon seal, *Phoca fasciata*, was sighted hauled out approximately 1 mile north of Oysterville Road on the Long Beach Peninsula. The ribbon seal appeared to be in good condition and went back into the water. This information and attached photos was shared with Washington Department of Fish and Wildlife Marine Mammal Investigations and Portland State University last night by a Refuge Biologist with the U.S. Fish and Wildlife Service in Ilwaco, Washington. Ribbon seals are typically found in Arctic waters near ice flows, ranging northward from Bristol Bay in the Bering Sea into the Chukchi, Okhotsk and western Beaufort Seas. This individual was a long way from the normal range for this species. More information is available at www.afsc.noaa.gov/nmml/education/pinnipeds/ribbon.php#live.



REGIONAL / NATIONAL MARINE SANCTUARY SYSTEM NEWS

President Obama Expands Papahānaumokuākea Marine National Monument



On August 26, 2016, President Obama signed a proclamation expanding Papahānaumokuākea Marine National Monument (PMNM). Previously the largest contiguous fully-protected conservation area in the United States at 139,797 square miles (362,073 km²), the expanded boundaries make it once again the biggest protected area on the planet at 582,578 square miles (1,508,870 km²), nearly the size of the Gulf of Mexico.

PMNM stands as a global model of successful natural and cultural conservation. This effort aligns with the Department of Commerce strategic goal of fostering healthy and sustainable marine resources, habitats and ecosystems and National Ocean Service “Place-based Conservation” priority. See

<http://sanctuaries.noaa.gov/news/aug16/president-announced-expansion-of-papahanaumokuakea-marine-national-monument.html> or www.papahanaumokuakea.gov/news/expansion_announcement.html.

Mortality Event Documented in Flower Garden Banks National Marine Sanctuary

On July 25, sport divers on the M/V *Fling*, diving in the Gulf of Mexico, found green, hazy water, huge patches of ugly white mats coating corals and sponges, and dead animals littering the bottom on the East Flower Garden Bank. The reef, which is part of Flower Garden Banks National Marine Sanctuary (FGBNMS), is normally considered one of the healthiest anywhere in the region. The charter captain alerted scientists from FGBNMS and Bureau of Ocean Energy Management, who were doing annual monitoring a few hundred yards away on the same reef. The scientists believe that a large-scale mortality event of unknown cause is underway on this bank. A response plan is currently being developed with partners and a series of cruises has been developed to collect water and biological samples, as well as to conduct long term monitoring at West Flower Garden Bank.

<http://sanctuaries.noaa.gov/news/jul16/noaa-scientists-report-mass-die-off-of-invertebrates-at-east-flower-garden-bank.html>

Scientists Describe New Species of Deep Reef Butterflyfish from Papahānaumokuākea Marine National Monument

A new species of butterflyfish was first observed in video taken from manned submersibles more than 20 years ago at depths as great as 600 feet in the mesophotic coral ecosystem. Because of the extreme depths, it wasn't until recently that technical divers using advanced electronic closed-circuit rebreathers were able to collect and preserve specimens in a way that would

allow proper scientific documentation as an undescribed species. The discovery of this new fish species, *Prognathodes basabei*, found in the deep reefs of Papahānaumokuākea Marine National Monument (PMNM), highlights a wealth of previously unknown biodiversity. Live specimens of *Prognathodes basabei* collected during a NOAA expedition are now on public display in the Bishop Museum, the Waikiki Aquarium in Honolulu and at the Mokupāpapa Discovery Center in Hilo. Holotype and paratype specimens have been placed in research collections at Bishop Museum, the California Academy of Sciences, and the Smithsonian Institution. A species description was published in Zookeys.

<http://sanctuaries.noaa.gov/news/press/2016/new-butterflyfish-species.html>



MARINE-RELATED NEWS COVERAGE

Researchers Collect Seal Scat to Study Decline of Fish

“Researchers are collecting seal scat across Puget Sound in an effort to learn why salmon and steelhead are at historically low returns.”

www.king5.com/tech/science/environment/seal-scat-collected-for-fish-decline-study_/270998708

Whale Scientists Say Resident Orcas Are Mostly Missing From Salish Sea This Year

“Whale watchers say they finally spotted some orcas off the Washington coast late last week. But experts say it’s still an alarmingly bad year for sightings of resident killer whales, which have been late to arrive and are showing up in much smaller numbers than usual.”

www.kplu.org/post/whale-scientists-say-resident-orcas-are-mostly-missing-salish-sea-year

'The Blob,' a Pacific Warm-Water Mass That Caused Weather Havoc, is Back

“The blob’ — a havoc-wreaking oceanic phenomenon, not the classic movie monster — is back. In fact, it never really went away. The mass of warm ocean water, which got its moniker from meteorologists, was believed to have dissipated, along with its disastrous effects on ocean ecosystems.”

www.oregonlive.com/pacific-northwest-news/index.ssf/2016/07/the_blob_a_pacific_warm_water.html

Second Confirmed Sighting of Fin Whale in U.S. Waters Since 1930

“Some call Puget Sound “Orca Country,” but nowadays the seascape has changed. Perhaps it’s best to call these inland waters, ‘the American Serengeti,’ home now to as many whale and dolphin species as there are terrestrial creatures in Kenya and Tanzania.”

sanjuanislander.com/news-articles/environment-science-whales/whales-2/22396/2nd-confirmed-sighting-of-fin-whale-in-u-s-waters-since-1930

State Tribe Joins Legal Challenge Over Modified Salmon

“An Olympic Peninsula Native American tribe has joined a lawsuit challenging the federal government’s approval of an Atlantic salmon genetically modified to grow faster. The Quinault Indian Nation on Friday joined the lawsuit that 11 other fishing and environmental groups filed against the U.S. Food and Drug Administration and others in late March.”

archive.peninsuladailynews.com/article/20160720/NEWS/307209989

Federal Appeals Court Rejects Sonar-Use Ruling; Navy Sees No Immediate Impact on Northwest Activities

“A recent federal appeals court ruling will have no immediate impact on warfare-related sonar testing and training activities by the U.S. Navy off the Northwest coast, a Navy spokeswoman said Monday. The Ninth U.S. Circuit Court of Appeals on Friday ruled that the Navy was wrongly allowed to use sonar in the nation’s oceans that could harm whales and other marine life.”

www.peninsuladailynews.com/article/20160719/NEWS/307199989

Whales Mourn Their Dead, Just Like Us

“Seven species of the marine mammals have been seen clinging to the dead body of a likely friend or relative, a new study says.”

news.nationalgeographic.com/2016/07/whales-death-grief-animals-science/

A Native American Leader's Legacy Lives On At Nisqually Wildlife Refuge

“Top Northwest officials and a member of President Obama’s cabinet will gather Tuesday for the renaming of a wildlife refuge near Olympia in honor of one of the region’s best known Native American leaders. The Nisqually National Wildlife

Refuge is being renamed in honor of late Nisqually tribal leader Billy Frank Jr.”

kuow.org/post/native-american-leaders-legacy-lives-nisqually-wildlife-refuge

Humpback Whales Enjoying the Seattle Summer in Big Numbers

“This summer is proving to be a bonanza for whale-watchers. According to The Pacific Whale Watch Association, tourists and researchers are seeing groups of humpback whales in the Salish Sea and Puget Sound nearly every day.”

kuow.org/post/humpback-whales-enjoying-seattle-summer-big-numbers

Starving Seabirds Washing Up Dead on Washington Beaches

“Seabirds have been washing up dead on beaches in Washington and British Columbia this summer, and scientists can't say why.”

kuow.org/post/starving-seabirds-washing-dead-washington-beaches

U.S. Ordered to Lower Navy Sonar Levels to Protect Whales

“U.S. officials have wrongly allowed the Navy to use sonar at levels that could harm whales and other marine mammals in the world's oceans, a federal appeals court in San Francisco has ruled.

The decision Friday by the Ninth U.S. Circuit Court of Appeals would scale back the Navy's use of low-frequency sonar in the Atlantic, Pacific and Indian oceans and the Mediterranean Sea under authority that was granted in 2012.”

www.sfchronicle.com/science/article/U-S-ordered-to-lower-Navy-sonar-levels-to-8381417.php

New Species of Rare Beaked Whale Discovered in Bering Sea

“A new species of incredibly rare beaked whale was identified after one of the animals washed ashore on an island in the Bering Sea and, after an extensive search through tissue samples at museums, it was discovered the cetacean was a completely new species, researchers said.”

www.oregonlive.com/trending/2016/07/new_species_of_rare_beaked_wha.html

Washington Asks EPA to Ban Boat Discharge in Puget Sound to Promote Shellfish Harvesting

“The Washington Department of Ecology has requested that the Environmental Protection Agency ban boats from pumping treated sewage into Puget Sound in an effort to improve water quality and protect shellfish beds and swimming beaches from harmful bacteria. The area affected would go as far west as Sequim and north to the Canadian border.”

www.islandsworld.com/news/388771211.html

Regulators Approve Clean-Water Rules Connected to Fish Consumption

“State regulators have adopted new clean-water rules tied partly to how much fish people eat after years of heated debate over how clean the state's water should be. Now it's up to the U.S. Environmental Protection Agency— which stepped in last fall to write its own rules for Washington — to decide whether the state's plan is good enough.”

www.peninsuladailynews.com/article/20160803/NEWS/160809983/regulators-approve-clean-water-rules-connected-to-fish-consumption

The Blob That Cooked the Pacific

“The first fin whale appeared in Marmot Bay, where the sea curls a crooked finger around Alaska's Kodiak Island. A biologist spied the calf drifting on its side, as if at play. Seawater flushed in and out of its open jaws. Spray washed over its slack pink tongue. Death, even the gruesome kind, is usually too familiar to spark alarm in the wild north.”

www.nationalgeographic.com/magazine/2016/09/warm-water-pacific-coast-algae-nino/

Coast is Clear: European Green Crabs Absent From Strait of Juan de Fuca — So Far

“Scientists have called on the public to help monitor shorelines for an invasive species of crab over the summer. Teams of citizen scientists have searched the Puget Sound and Strait of Juan de Fuca for European green crabs and so far the results are good.”

www.peninsuladailynews.com/news/coast-is-clear-european-green-crabs-absent-from-strait-of-juan-de-fuca-so-far/

NOAA Fisheries Establishes International Marine Mammal Bycatch Criteria for U.S. Imports

“Fish and fish products must meet protection standards comparable to the U.S. Nations exporting fish and fish products to the United States will have to meet fishing standards for protecting marine mammals equal to those American fishermen follow, under a final rule published today by NOAA Fisheries.”

www.nmfs.noaa.gov/mediacenter/2016/08_August/11_08_mmpa_fish_import_provisions.html

Study Shows 10 Percent Decline In Global Wilderness Over 20 Years

“The world’s wilderness areas have experienced catastrophic losses in the past two decades, according to a new study published Friday in the journal ‘Current Biology.’”

kuow.org/post/study-shows-10-percent-decline-global-wilderness-over-20-years

Gray Whale Bones Being Prepared for Exhibit at Port Townsend Marine Science Center

“The bones of a deceased gray whale that was anchored underwater at Naval Magazine Indian Island have been moved to a Marrowstone Island greenhouse to dry and are destined to become a new exhibit at the Port Townsend Marine Science Center.”

www.peninsuladailynews.com/news/gray-whale-bones-being-prepared-for-exhibit-at-port-townsend-marine-science-center/

Long Beach Razor Clam Population Best in 25 Years

“Long Beach Peninsula has its largest population of razor clams measured in 25 years and eight nights of digging tentatively are set to begin Oct. 14.”

www.columbian.com/news/2016/sep/13/long-beach-razor-clam-population-best-in-25-years/

‘Son of Blob’ Springs to Life in the Pacific

“‘The Blob’, a news-making patch of unusually warm ocean surface water from late-2013 through autumn 2015, was reborn this month. The ocean warmed quickly. As recently as July, ‘The northeast Pacific off our coast was slightly above normal, but nothing exceptional,’ University of Washington meteorologist Cliff Mass noted Sunday on his popular blog.

www.chinookobserver.com/co/local-news/20160912/son-of-blob-springs-to-life-in-the-pacific

Registration is Open for Fall Beach Cleanup Set for Sept. 17

“Registration is open now for fall beach cleanups during the 2016 International Coastal Cleanup on Sept. 17. About 100 volunteers have signed up so far at www.coastsavers.org, according to Jon Schmidt of Washington CoastSavers.”

www.peninsuladailynews.com/news/registration-is-open-for-fall-beach-cleanup-set-for-sept-17/

Obama To Designate First Marine National Monument In The Atlantic Ocean

“During the Our Ocean conference later this morning in Washington, D.C., President Obama will establish the first national marine monument in the Atlantic Ocean. ‘We’re protecting fragile ecosystems off the coast of New England, including pristine underseas canyons and seamounts,’ Obama said during his remarks.”

kuow.org/post/obama-designate-first-marine-national-monument-atlantic-ocean

Arctic Sea Ice Cover Set to be Second Lowest Ever Recorded, Data Suggests

“Satellite data shows ice was close to last year’s record low confirming a long-term downward trend towards ice-free Arctic summers.”

www.theguardian.com/environment/2016/sep/14/arctic-sea-ice-cover-set-to-be-second-lowest-ever-recorded-data-suggests

OCNMS ONLINE

Visit our website at: <http://olympiccoast.noaa.gov/>.

Follow us on Facebook and Twitter!

<https://www.facebook.com/usolympiccoastgov>

<https://twitter.com/olympiccoast>

Please take a few moments to peruse the site. Your feedback is greatly appreciated.

*Comments and suggestions can be sent to:
Jacqueline.Laverdure@noaa.gov.*

OCEAN-RELATED WEBSITES

National Oceanic and Atmospheric Administration

<http://www.noaa.gov/>

National Ocean Service

<http://oceanservice.noaa.gov/>

Office of National Marine Sanctuaries

<http://sanctuaries.noaa.gov/>

NOAA Marine Debris Program

<http://marinedebris.noaa.gov/>

NOAA Online Media Library

<http://sanctuaries.noaa.gov/photos>

Encyclopedia of National Marine Sanctuaries

<http://www8.nos.noaa.gov/onms/park/>

NOAA Ocean Explorer

<http://oceanexplorer.noaa.gov/>

National Data Buoy Center

<http://www.ndbc.noaa.gov/rmd.shtml>

Washington's Ocean Resources

<http://www.ecy.wa.gov/programs/sea/ocean/index.html>

CoastWatch – West Coast Regional Node

<http://coastwatch.pfel.noaa.gov/>

Northwest Association of Networked Ocean Observing Systems

<http://www.nanoos.org/>

NOAA's Pacific Marine Environmental Laboratory

<http://www.pmel.noaa.gov/>

OLYMPIC COAST NATIONAL MARINE SANCTUARY

Learn More About Your Sanctuary

The Sanctuary Office Report is produced bi-monthly by Olympic Coast National Marine Sanctuary in conjunction with sanctuary advisory council meetings. To learn more about the sanctuary, please visit our website at:
<http://olympiccoast.noaa.gov/>.

To learn more about the sanctuary advisory council, please visit:
http://olympiccoast.noaa.gov/involved/sac/sac_welcome.html.

Office of National Marine Sanctuaries (ONMS)
Olympic Coast National Marine Sanctuary is one of the marine protected areas in the National Marine Sanctuary System encompassing more than 600,000 square miles of marine and Great Lakes waters from Washington State to the Florida Keys and from Lake Huron to American Samoa. The system includes 13 national marine sanctuaries and Papahānaumokuākea and Rose Atoll marine national monuments. Visit the ONMS website at:
<http://sanctuaries.noaa.gov/>.

Get Involved!

To learn how to get involved in the sanctuary visit:
<http://olympiccoast.noaa.gov/involved/welcome.html>.

OCNMS Staff

Carol Bernthal – Superintendent

George Galasso – Deputy Superintendent for Policy & Programs

Kevin Grant – Deputy Superintendent for Operations & Administration

Liam Antrim – Resource Protection Specialist

Eric Evans – IT Consultant

Carey Floyd – Graphic and Web Designer

Alisha Friel – NOAA Corps Officer, Vessel Operations Coord

Nicole Harris – Education Specialist

Kathy Hough – Survey Technician

Norma Klein – Office Administrator

Karlyn Langjahr – SAC Coordinator and Discovery Center Manager

Jacqueline Laverdure – Education and Outreach Coordinator

Rebecca Lewis – Education and Stewardship Specialist

Robert Rountree – Visitor Services Specialist

Contact Information Olympic Coast National Marine Sanctuary

115 East Railroad Ave., Suite 301
Port Angeles, WA 98362
Phone (360) 457-6622
Fax (360) 457-8496

